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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,724	12/10/2004	Mario Andjelic	P16519US1	6053

27045 7590 06/01/2007		

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EXAMINER
SEYE, ABDOU K

ART UNIT	PAPER NUMBER
2194	

MAIL DATE	DELIVERY MODE
06/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/517,724	ANDJELIC, MARIO
	Examiner	Art Unit	
	Abdou Karim Seye	2194	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>26 March 2007</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-29</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-29</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>10 December 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All b) ☐ Some * c) ☐ None of:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.
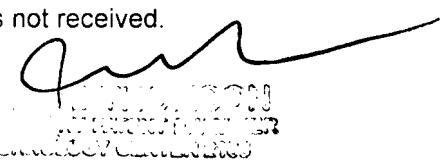
Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date <u>12/10/2006, 12/22/2006</u>.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

1.   The request for continued examination filed on March 26, 2007 has been received and

entered. The amendment amended Claims 1, 15, 17 and 27. The currently pending claims

considered below are Claims 1-29.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103 (a) which forms the basis for all

obvious rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

3. Claims 1-29 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Cezary

Dubnicki et al ("Software Support for Virtual Memory-Mapped Communication",

1996, pages 372-381) in view of Morris et al: **(US7007157)**.

Claims 1, 15-17 and 27, Dubnicki teaches a network device driver architecture for

enabling access between operating system kernel space and a network interface

controller (NIC) as well as between user space and said NIC, comprising:

a kernel-space device driver adapted for enabling access between kernel space and user space via a kernel-space-user-space interface (fig. 3, section 5.3,page 378, col. 1); and

user-space device driver functionality adapted for enabling direct access between user space and said NIC via a user-space-NIC interface, wherein the user-space device driver functionality provides direct, zero-copy user-space access to the NIC. (fig. 3, section 5.3; page 378, col. 1; section 3, page 374, col. 1) Said user-space device driver functionality adapted for interconnecting said kernel-space-user-space interface and said user-space-NIC interface to enable integrated kernel-space access and user-space access to said NIC (fig. 3, section 5.3, page 378);But he does not disclose, Wherein the network device drive architecture provide simultaneous user-space and kernel-space access to a network layer over a single NIC port. However in the same field of endeavor Morris discloses a single, shared or common communication port for transmitting/receiving user and kernel mode data (abstract; fig. 1, col. 4, lines 21-30; fig. 3: 202).Therefore it would be obvious to one having ordinary skill in the art at the time the invention was made to modify Dubnicki's invention with Morris's invention in order to allow kernel mode data traffic and user mode data traffic to share a common network communication port. One would have been motivated to provide simultaneous user-space and kernel-space access to a network layer over a single NIC port because it would reduce cost/size/complexity of appliances/devices installed on a network (Morris, col. 3, lines 62-67).

Claims 2 and 19:Dubnicki teaches,

wherein said kernel-space device driver is adapted for establishing said kernel-space-

user-space interface in relation to said user-space device driver functionality (fig. 3,

section 5.3, col. 1, page 378).

Claims 3 and 18, Dubnicki teaches

wherein said user-space device driver functionality is adapted for fetching pointer

information, pointing to data in a common memory, from a memory buffer associated

with one of said kernel-space-user-space interface and said user-space-NIC interface

and inserting said pointer information into a memory buffer associated with the other of

said interfaces, thereby interconnecting said kernel-space-user-space interface and

said user-space-NIC interface (page 373, section 3, col. 2; virtual memory-mapped

communication model and transfer of data to address space; page 374, col. 1, page

374; data in shared memory and memory addressing). These claimed elements of

Dunicki's reference meet the claimed limitations of the claim.

Claim 4, Dubnicki teaches

wherein each of said kernel-space-user-space interface and said user-space-NIC

interface is associated with two memory buffers, a transmit buffer and a receive buffer

(section 3, col. 2, page 373; col. 1, page 374; section 4, page 374; sender and receiver

buffers).

As per claims 5-6 and 20-21, they are rejected for the raisons as claims 3 and 4

above.

Claims 7 and 22: Dubnicki teaches

Wherein said user-space device driver functionality is configured for execution in

application context of a user application (fig. 3; user process page 374, col. 1, section 4)

Claims 8 and 23: Dubnicki teaches

Wherein said step user-space device driver functionality is implemented as user-space

library functionality (fig. 3; VMMC library).

Claims 9-11: Dubnicki discloses a network device driver architecture as in claims 1, 15,

17 above comprising a user-space device driver and a kernel-space device driver, but

he does not explicitly disclose a first and second operational mode; switching

operational mode in response to user application failure. However in the same field of

endeavor Morris discloses a network interface sharing methods and apparatuses that

support kernel mode data traffic and user mode data traffic (abstract; fig. 3: 212 and

204; col. 6, lines 47-60) and switching mode (col. 6, lines 65-67 and col. 7, lines 1-5;

col. 8, lines 23-26) as part of the debugging operation (col. 10, lines 20-25).

Therefore it would be obvious to one having ordinary skill in the art at the time the

invention was made to modify Dubnicki's invention with Morris's invention in order to

allow kernel mode data traffic and user mode data traffic to share a common network

communication port. One would have been motivated to provide simultaneous user-space and kernel-space access to a network layer over a single NIC port because it would reduce cost/size/complexity of appliances/devices installed on a network (Morris, col. 3, lines 62-67).

Claim 12, Dubnicki teaches, wherein said kernel-space device driver comprises:

a kernel-space agent for managing said kernel-space-user-space interface (section 4, col. 1, page 374); but he does not explicitly disclose a network device driver core operable for directly accessing said NIC in said first operational mode, and operable for routing outgoing data to said kernel space agent and for receiving incoming data from said kernel space agent in said second operational mode. However in the same field of endeavor Morris discloses a network interface sharing methods and apparatuses that support kernel mode data traffic and user mode data traffic (abstract; fig. 3: 212 and 204; col. 6, lines 47-60) and switching mode (col. 6, lines 65-67 and col. 7, lines 1-5; col. 8, lines 23-26) as part of the debugging operation (col. 10, lines 20-25).Therefore it would be obvious to one having ordinary skill in the art at the time the invention was made to modify Dubnicki's invention with Morris's invention in order to allow kernel mode data traffic and user mode data traffic to share a common network communication port. One would have been motivated to provide simultaneous user-space and kernel-space access to a network layer over a single NIC port because it would reduce cost/size/complexity of appliances/devices installed on a network (Morris, col. 3, lines 62-67).

As per claim 13-14, 24-26 and 28-29, they are rejected for the same reasons as claims

above.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Exr. Abdou Seye whose telephone number is (571)

270-1062. The examiner can normally be reached Monday through Friday from 7:30

a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, contact the

examiner's supervisor, William Thomson at (571) 272-3718. The fax phone

number for formal or official faxes to Technology Center 3600 is (571) 273-8300.

Draft or informal faxes, which will not be entered in the application, may be

submitted directly to the examiner at (571) 273-6722.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Group Receptionist whose telephone

number is (571) 272-3600.

AKS
May 16, 2007